

America's Network

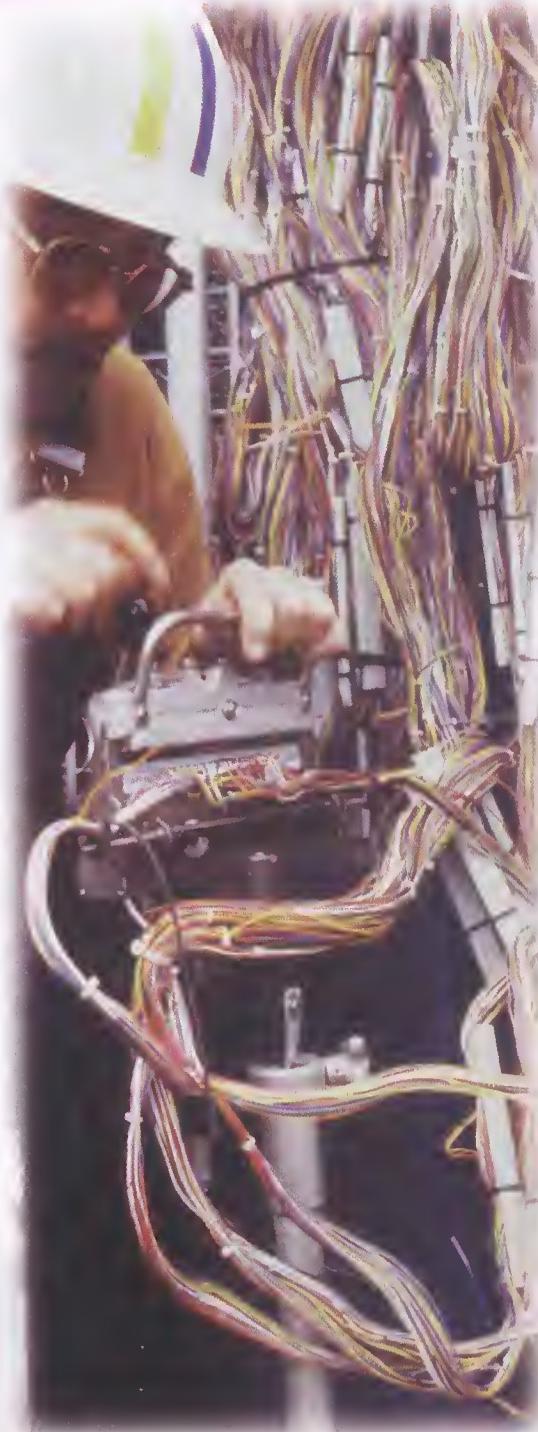
DECEMBER 1, 1995

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Local Services Competition Has Arrived, Right? Wrong. Here Are Five Top Reasons Why Not.



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FROM THE
E D I T O R S

TAKE THE RISK— IT'LL BE WORTH IT



There has been a lot of talk recently about the local exchange industry dragging its feet on providing competitors access to local switches. Local carriers reportedly are engaged in all kinds of blocking tactics; they've been accused of intentionally sending the wrong personnel to important meetings on interconnection and of making secret high-level decisions to hamstring deregulation.

If even half these stories are true, local exchange carriers are doing themselves—and their shareholders—a disservice. By trying to stall deregulation until some notion of a perfectly level playing field is achieved, the local exchange industry is losing precious ground in the race for larger future market share.

This market will be dominated by the best providers of consumer and business interactive services, not bandwidth. By focusing on the economics of transmission without devoting at least an equal amount of attention to content and services, the local exchange industry is playing a dangerous game on behalf of its shareholders.

If the broadcasting model is any guide, local exchange carriers will continue to lose market share to competitors. But it won't be because they have sacrificed transmission rights of way. It will be because more progressive service providers have tapped into a market appetite for innovative features and services.

The local exchange industry should stop dragging its feet now on addressing the details of providing competitive access to the local loop. The strategy is short-sighted, and in the long run is a losing proposition.

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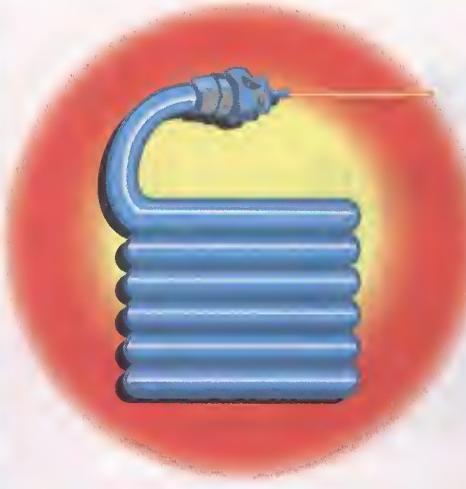
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THERE'S MORE TO MULTIMEDIA SUCCESS THAN TECHNOLOGY

David Ticoll

Employees at Ingenius, a joint venture of TCI and Reuters New Media, have created the first interactive multimedia newspaper, piped daily into classrooms around the country. Called "What on Earth," the paper draws its content from Reuters' vast networked information resources and uses TCI's cable network for distribution. Thanks to internetworking, it takes fewer than 20 people to produce this multimedia product daily.

At the Pentagon, military leaders now are using technology to reinvent health care delivery and assure real-time treatment on the battlefield. The vision: "telemedics" skilled in virtual reality applications providing hospital-level treatment in the foxhole, saving lives by providing immediate care.

Internal company functions can have real profit potential when turned into standalone businesses—as AMR learned when it converted its SABRE computerized reservations system into a worldwide network accessible to millions of travel agents. Now AMR, best known as the parent company of American Airlines, applies the same formula to training; it is marketing its WorldTutor Multimedia Training to companies as diverse as Sprint and Kodak. The key: templated multimedia training materials that provide a wealth of information, let learners progress at their own pace and improve retention.

What do these multimedia applications have in common? First, each begins with a well-thought-out product or service strategy that effectively uses new networked interactive multimedia (NIM) technologies. Second, users invest in the technology infrastructure that enables this strategy. Third, they embody what can be defined as high-performance management characteristics. Put the three traits together and you get an unbeatable powerhouse in the merging networked environment.

Recently, the Alliance for Converging Technologies surveyed senior executives regarding their plans to use networked interactive multimedia. An overwhelming majority—83%—said they definitely plan to invest in and implement the new technology.

The data showed that some companies will indeed harvest favorable results from NIM investment. But it was just as clear that some will throw their money away if they can't focus simultaneously on the right business

strategy and high-performance characteristics: a clear management vision, a healthy work climate and an atmosphere that empowers employees to make customer-related decisions. Equally important, organizations that exhibit these traits foster a continual learning process.

Mapping the data to find which industries are most likely to wed NIM successfully with high-performance organizational characteristics, the Alliance revealed a matrix of four types of organizations:

- Industrial Age. Encompassing 30% of retail outfits and 25% of manufacturers and government organizations, these organizations possess neither high-performance characteristics nor leadership committed to rethinking their business strategy in light of NIM. Relics of smokestack management thinking, they will have a miserable time competing in the late 1990s.
- Titanics. This group scored well on high-performance characteristics but low on NIM-driven vision. These industries appear to enjoy smooth sailing but are unaware of looming competitive threats. Includes 40% of health care, travel and hospitality industries.
- Forced March. Many companies (particularly in telecom and publishing) are driving hard to implement NIM but lack focus on other high-performance characteristics. These organizations are facing severe threats from more nimble competitors.
- Internetworked Enterprises. These organizations combine NIM-enabled business strategies with a clear management vision, a healthy internal culture that promotes constant learning and employee empowerment to meet customer needs. Often represented by smaller companies, internetworked enterprises cut across an array of industries, particularly telecommunications and education.

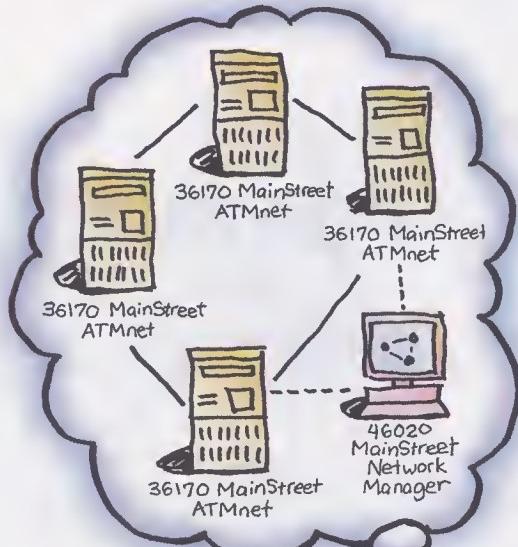
As organizations plot their strategy for the digital economy, success will involve much more than merely throwing money at new technology. Companies must rethink their course for the future and integrate the right strategy, the right technologies and high-performance management practices. Without this fundamental change in direction, many will fail to see competitive "icebergs" that suddenly loom up and send them straight to the bottom.

Recipe for Success

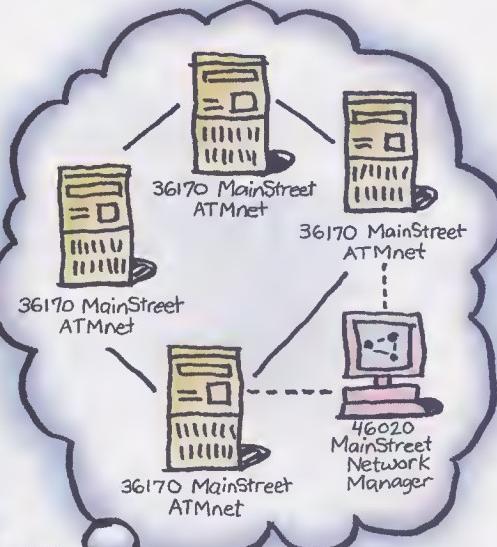
Companies need to focus simultaneously on the right business strategy and high-performance characteristics: a clear management vision, a healthy work climate and an atmosphere that empowers employees to make customer-related decisions.

David Ticoll is president of the Alliance for Converging Technologies, a research, education and strategic consulting group whose members include 26 major corporate and government organizations. You can contact him at dticoll@actnet.com.

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POWERING HFC: YOU SAY CENTRALIZED, I SAY DISTRIBUTED

Mark Dziatkiewicz, Contributing Editor

In Congress, Republicans aim to distribute power away from centralized government bureaucracy—big is bad in the '90s. The reverse power play is at work in broadband HFC networks, where service providers move to centralized from distributed network powering.

The terms "centralized" and "distributed" powering aren't new, but industry definitions differ. For telephone companies, centralized powering long has meant central office based, while CATV companies primarily operate with distributed powering.

But as telephone companies move to distributed from centralized and CATV companies vice versa, it's confusing to realize both are accomplishing the same thing with HFC networks.

"By 'central,' we don't mean the same thing as telephony, because it's not powering from the central office. It's more of a central node powering scheme," explains Jack Webb, product manager-cable television for Alpha Technologies. "We'd have to say that centralized and distributed became descriptions sometime after the hybrid fiber/coax topology or architecture became popular, because prior to that everything was distributed."

Classical RF CATV power designs follow tree-and-branch configuration. "You go from the headend down the trunk and add up the power requirements until you've totaled about the capacity of one power supply," he continues. "Then you look for a center of that physically and try to locate a place to install your power supply."

A full-load power plant handles approximately 900 watts, so engineers design to 80% of that. "When you've covered 720 watts in system design, you go to the center and locate the power supply. Then taking the last amplifier you were able to power, you start at that point and add up for the next power requirement," he says. Distributed power systems are still an option—even with HFC, according to Webb.

But broadband network powering has changed, because it's not just CATV anymore. Network offerings include interactive multimedia, video conferencing, data services and POTS. This service collection has radically different powering requirements than traditional cable. And as HFC node architectures prove popular, so do powering architecture alternatives.

BIGGER IS BETTER

Centralized power offers efficiencies not available with distributed systems.

One key benefit is the additional standby gained using a natural gas or propane generator. By doing that, operators can power the node for an indefinite period of time, even with a utility outage.

HFC networks introduce fiber nodes and centralized powering concepts. "In hybrid fiber/coax systems, the node is where light is converted back to RF," explains Webb. "From that point outward in the system, the fiber optic receivers and line distribution electronics have to be powered. Along with that, we may have a lot of other equipment including telephone equipment, return amplifiers, lasers, fiber optic amplifiers, and all these are powered in most cases from a classical CATV 60 volt quasi-square wave power source."

Node size and power needs vary by system, often determined by RF system performance. "The system design is dictated by the capabilities of the node and line electronics, and the power design is done to fit the line requirements," he continues. "Nodes can be anywhere from as small as 200 homes to 2500 homes. Today, most fit into approximately 500- or 2000-home size."

CENTRALIZED POWERING BENEFITS

Key centralized powering benefits include considerable cost savings and ability to subdivide as requirements change. "What we've done with the approach to powering the node is build a flexible system, which allows us to relocate nodes," Webb contends. "If you have an area of 2500 today, you could split the node in half. If you started out with a design for 500 homes and it grew to 1000, we can split into two 500-home nodes or add additional power modules to increase the capacity of the node."

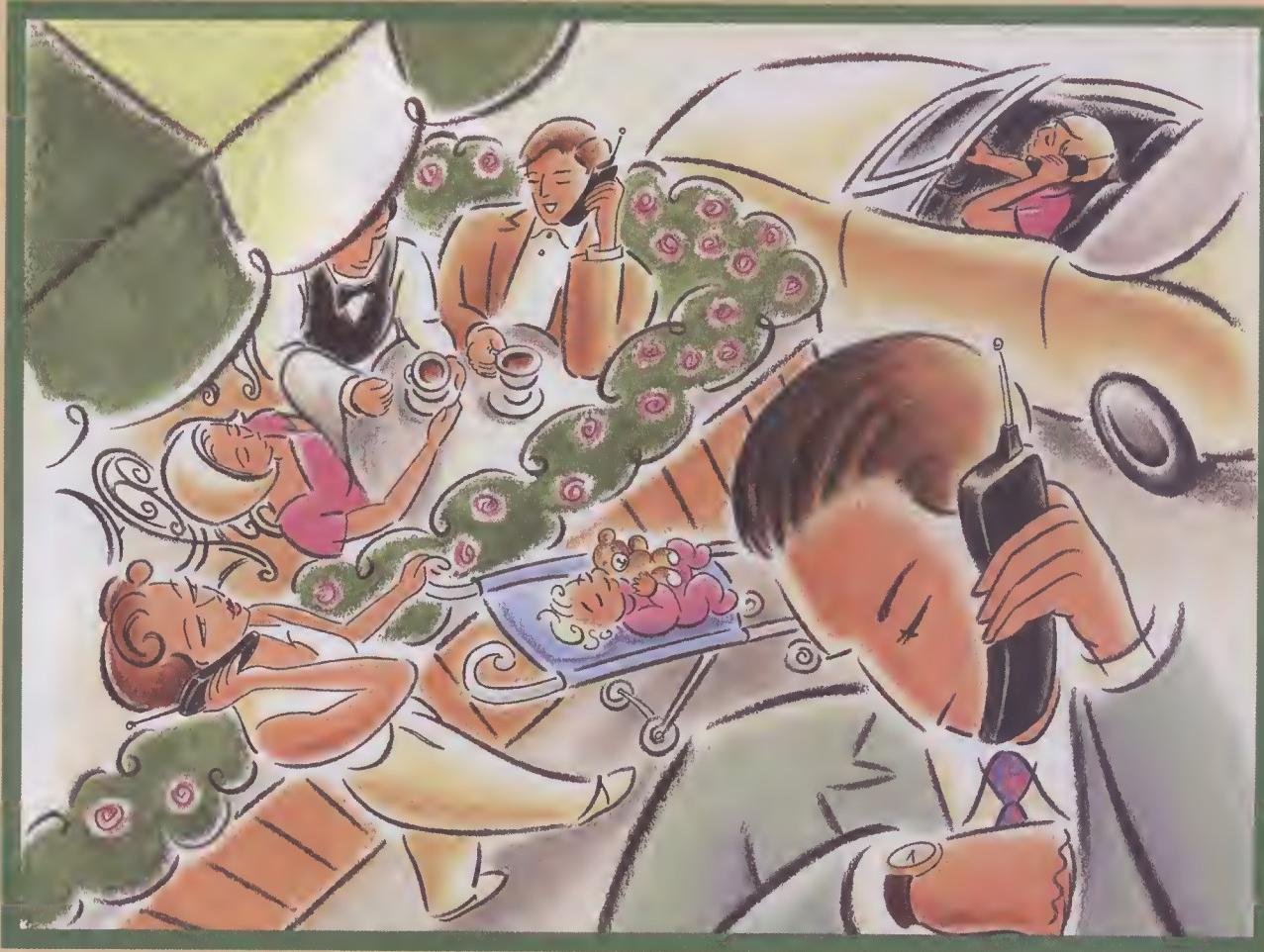
According to Webb, a 2500-home node might require 3000 watts of power. "What we'd do is install two 1500-watt line conditioners and inverters. We'd take two output protection devices, one generator and a string of batteries, and there's your basic node." The same node powered with a distributed system would require five to seven power supplies spread throughout the neighborhood.

Centralized power offers efficiencies not available with distributed systems. "One key benefit is the additional standby we can gain using a natural gas or propane generator," adds Webb. "By doing that, we can keep the node powered for an indefinite period of time, even with a utility outage. Plus we have the benefits of single-site installation, lower costs, lower maintenance and better access."

With redundancy and increased reliability opportunities, centralized power strikes an appealing contrast to distributed. Big doesn't have to be bad after all. ■

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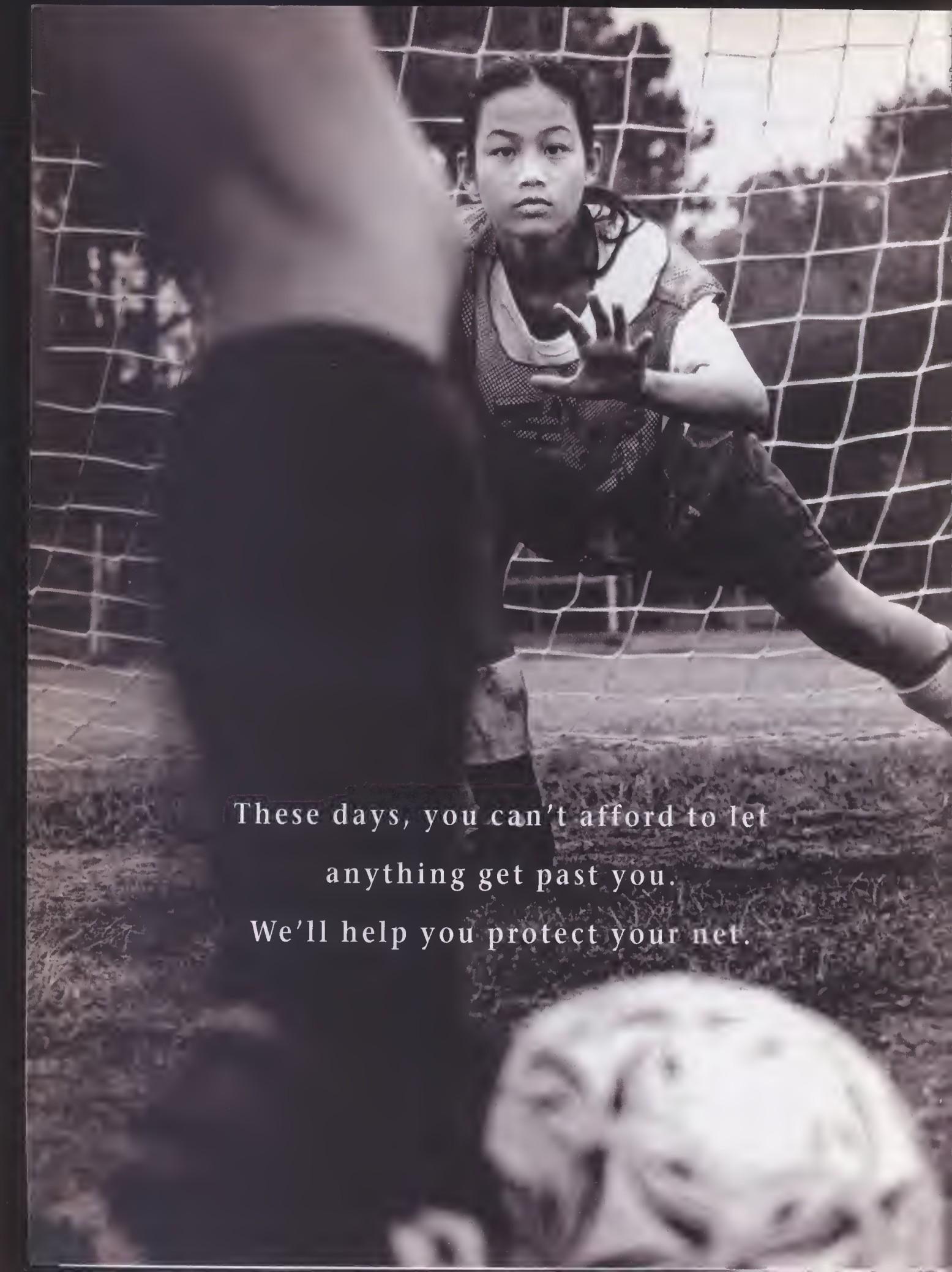
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DEDICATED LINE

Patty Wetli
Associate Editor

Apparently, the music biz is music to telecom execs' ears. MCI recently introduced a service that allows customers to order music over the network. 1.800.DEDICATE goes one step further, giving new meaning to the phrase "long distance dedication."

Based on radio's request and dedication format, the service lets individuals choose

from a song list and send their selection and a personal message to anyone in the U.S. "It caters to special occasions," says marketing and sales director Kiki McGregor.

Currently, callers dial in and receive a catalog of songs via fax or mail (an on-line option will be available shortly). Each song has a corresponding code, which the user enters when actually ordering a dedication. "You hear a few bars of the song" to make sure it's the right one, notes McGregor.

So rather than trot over to Hallmark, you can have Natalie Cole tell someone you think they're "Unforgettable." Or Johnny Paycheck will gladly inform your boss to "Take This Job and Shove It."

"Our target audience is really quite broad," says McGregor. "We have everything from the old crooners...all the way up to Hootie and the Blowfish." And the company is adding Christmas songs just in time for the holiday season.

But McGregor admits the "love categories" are the company's bread and butter. "That will be the stable one" as opposed to specific holidays. If the \$9.95 price tag doesn't prove a deterrent, Casey Kasem might be singing the blues. ■



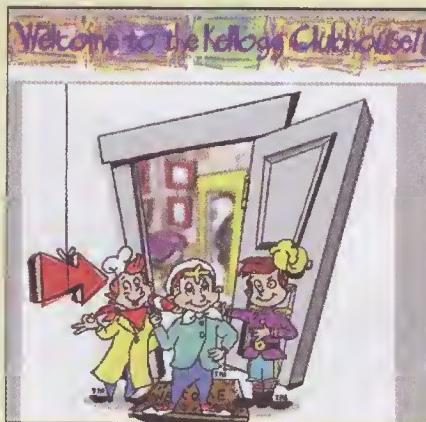
OH WHAT A FEELING

Toyota's hit the Web with a unique approach—sell a lifestyle, not a product. Sure, the company's site (<http://www.toyota.com>) contains your basic catalog of cars and definitions of tricky terms like anti-lock brakes. But a second area, dubbed "The HUB," ranges far beyond radiators and exhaust systems. According to the company, more than 20 journalists and authors will update this section monthly to give "consumers a place to get information about a Previa, late-night Parisian hot spots and planting petunias in one stop."

We checked out the "Modern Man" area and "Women's Web Weekly." The former included crucial "guy stuff" (the company's term) like how to organize a poker game; the latter included a major fashion faux pas—the information hadn't been uploaded. And we didn't even look at the Previa.

SNAP! CRACKLE! POP!

The lively trio welcomes visitors to the Kellogg Clubhouse (<http://www.kelloggs.com>) rec room, lounge and kitchen—each hosted by a different Krispie. Kids can "play" with Tony the Tiger and Toucan Sam; adults can download investor updates and stock value/returns. The company also plans to create a Nutrition University for grownups, offering information about what makes a better breakfast. Could it be Kellogg's cereal?



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AMERITECH'S LOCAL RESALE PLAN EARNS RBOC MIXED REVIEWS

Deborah Eby
Washington Editor

If you live in Chicago, you're about to experience the joys of genuine local competition, according to Ameritech. Starting Feb. 1, 1996, the RBOC claims it will resell local services at "wholesale" rates that will give competitors plenty of room for profit.

Ameritech apparently already has one satisfied customer; U.S. Network praises the RBOC for offering "a very viable pricing scheme." The RBOC declares it now has fulfilled most "checklist" requirements in pending telecom legislation for entry into interexchange service.

But not all potential local competitors agree. "I think it's pretty clear that this was a kind of a showboat," says Mark Trierweiler, AT&T's regional public policy director. "[U.S. Network] has been successful in getting Ameritech to provide them with something they haven't been willing to provide to MFS or to MCI or AT&T. This was kind of a 'See, we really are willing to open up our local exchange, just not to companies that could really deliver on the promises of competition.'"

SUCH A DEAL

Ameritech's month-to-month wholesale tariff gives resellers a 6% discount on residential and 10% discount on business services. Resellers willing to make larger time and volume commitments can get "significantly" bigger breaks on a sliding scale. The U.S. Network contract, whose details were unavailable at *America's Network* presstime, runs for 10 years.

But you can't buy centrex or special service circuits wholesale because "there's a lot of additional competitive alternatives out there in the industry today," admits Greg Dunny, vice president-marketing and

sales for Ameritech Information Industry Services.

Ameritech will exchange service order and repair data with resellers via electronic data interchange (EDI) and expand resale availability beyond Chicago as EDI systems are put in place. U.S. Network's executive vice president, Richard Vanderwoude, commends the RBOC for a well-planned EDI approach and fair pricing.

"Our investors put money into our busi-

**IT'S NOT LIKE WE COULD SAY, OK, IF YOU
REFUSE TO NEGOTIATE WITH US, WE'LL
JUST GO TO XYZ COMPANY, BECAUSE
THERE IS NO XYZ COMPANY.**

ness to earn a venture capital rate of return," he notes. The Ameritech deal gives U.S. Network "adequate room to package this with long distance and make a good service alternative to business customers. The comments that you've read are the natural first reactions of people who don't have all the facts."

Trierweiler is unimpressed by the publicized 6%-10% discount tariff. "I know it won't result in [competitors'] widespread entry because the margin just isn't big enough," he says, basing his judgment on AT&T's real-life experience with Rochester Telephone. "They have a 5% discount there, and we're losing a lot of money. It should really be in the 25-30% range."

STONEWALLED

U.S. Network may have been able to get such percentages, but AT&T can't, complains Trierweiler. "We've been negotiating with them [Ameritech] much longer than U.S. Network, and we haven't gotten

anywhere. They send the wrong people to meetings, they come to meetings without being prepared and they just plain refuse to negotiate on interconnection."

He theorizes that the RBOC's "strategy is just to keep us out, because U.S. Network is a very tiny company. Most people haven't even heard of it. They are no threat to Ameritech, but AT&T is, and the longer they can keep us at bay, the longer they have to get in the long distance business."

An RBOC spokesperson insists Ameritech is trying to strike a reasonable deal with the IXC giant. "AT&T is many times Ameritech's size," he says.

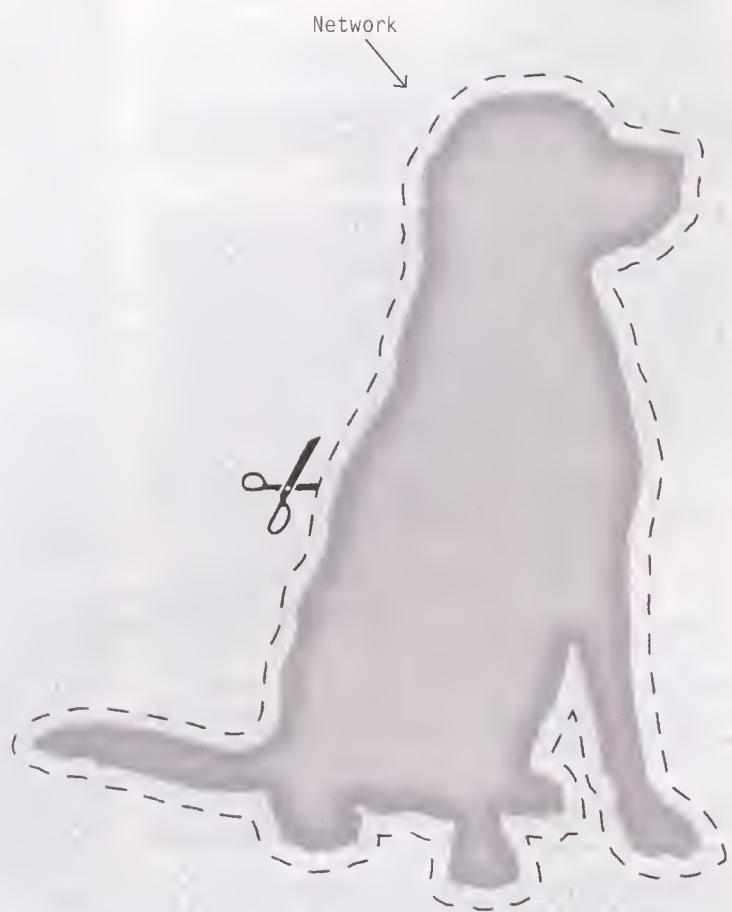
"AT&T has a lot of power and a lot of muscle. They can come in and negotiate a good deal. You'd have to ask them why they haven't chosen to do that. We'd be happy to offer them the same terms and conditions" in the U.S. Network deal, he claims.

LOOKING FOR ASSURANCE

Not having seen the details, Trierweiler suspects such a deal wouldn't fly. "If U.S. Network is getting 30% buying 200,000 lines, then AT&T would want a 45% discount because we're buying 2 million."

The whole situation underscores why Congress must assure that local competition develops before freeing the RBOCs to enter interexchange, he maintains. "It's not like we could say, 'OK, if you refuse to negotiate with us, we'll just go to XYZ company,' because there is no XYZ company. You have to give them an incentive to want competition to develop, because if they don't want it, they can stop it. We have absolutely been stonewalled for six months."

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NEW NET APPLICATIONS LET YOU PAGE HOME FROM A HOME PAGE

Vince Vittore
Associate Editor

Among average consumers, pagers are by far the most prevalent wireless devices. And with Internet usage expanding exponentially, it was just a matter of time before someone figured out how to marry the two technologies. Development of some new standards in this area may give paging its biggest boost and allow it to compete more directly with other wireless services.

Several paging companies are experimenting by allowing anyone with Web access to page their customers. On SkyTel's Web site (www.skytel.com), visitors can send pages to any of the carrier's subscribers. When the paging user responds (assuming they are using two-way service), the alpha message is deposited in the original sender's electronic mailbox.

The company views the application as something of an experiment but also is looking down the road to several different possibilities including letting new customers sign up for service and allowing existing customers to change their features through the Web.

"At this point, it's a little of both," says Jennifer O'Mahony, company spokesperson. "Since people are using [Web] home pages a lot, it seemed natural to let people use them in a practical way."

Paging companies aim to give people as many options as possible to reach their providers. "The major goal is to provide access to any PC user who has access to the Internet," says Ron Mercer, vice president-marketing and sales for Real Time Strategies (RTS), which recently introduced a new Internet server designed for paging providers. "We're really running it as an experiment to get some experience

interfacing with the Internet. And secondly, to allow carriers to experiment with the marketability of this type of service." Current customers include PageNet, which also allows Web cruisers to send alphanumeric messages off its site.

Technically, when a Web user sends a page, the message is received as a TCP/IP message, says Mercer. From there, it's converted into a simple network paging protocol (SNPP) format. Notification and the message text then are sent over the normal radio network to the pager.

SINCE PEOPLE ARE USING [WEB] HOME PAGES A LOT, IT SEEMED NATURAL TO LET PEOPLE USE THEM IN A PRACTICAL WAY.

Currently, companies only allow pages to their own subscribers. RTS, however, is developing a system to let anyone communicate with any paging subscriber, regardless of service provider. There are some major obstacles—both technical and political—to overcome before that can occur, though, says Mercer. "You first have to identify the person's handle and recognize that they are a particular company's customer."

ENTER TDP

A new protocol may help speed the process and lead to even greater applications. Telocator data protocol (TDP) will let software developers write new applications to a single standard. On an application level, TDP allows users to transfer complete data files from the Internet to paging subscribers with few limitations on

length and content. Also, it doesn't require system operators to convert text messages into ASCII.

"Traditionally, alphanumeric paging has been very restricted," says Mercer. Messages often are limited to 80 characters, in some cases allowing as many as 250. "It's not a lot of characters for sending a whole file. The purpose of TDP is really to broaden the base of users beyond something on your belt."

TDP, which was developed from the Telocator alphanumeric input protocol (TAP), will let paging providers use their existing networks for multipoint data distribution. Mercer already envisions applications such as using TDP to send data over the Internet to banks and other financial institutions.

For those entering the two-way paging market, the possibilities are even greater despite the fact TDP was not designed with duplex transmission. SkyTel solved the initial problem by writing a set of proprietary protocols on top of TDP; these will allow application developers to design new services in a somewhat open environment. Currently, the company has a beta version of its application environment out to selected sites and is expected to have a commercial version soon, says O'Mahony.

Once developers get their hands on the kits, she adds, nothing will be beyond the realm of possibility. "Paging is just one layer of service on the network."

And though she can't discuss specifics, O'Mahony says SkyTel is talking with potential partners that could surprise the industry. Some of the first may be auto makers. Using TDP, it would be possible to perform remote diagnostics on a vehicle or even download a set of directions to specific locations. "The two-way has opened a lot of doors for paging. It brings us into a whole new realm."

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- Corporate Management** (Chairman, Owner, President, Partner, Executive/Senior VP/Director, Treasurer, CFO, COO)
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34B3

and steady revenue stream. Those seeking long-term growth and higher risk, and hopefully greater return, will be attracted to the Media Group.

"We were actually alienating investors on both sides," says Leach. The RBOC's aggressive diversification plans penalized core stockholders, who objected to the earnings dilution created by dalliances in Media Group-type businesses. Conversely, those interested in high growth were turned off by the company's staid Bell image.

"Wall Street analysts were telling us for a year to do something different," the corporate stock was undervalued because it was perceived as a "mixed bag of assets," says Leach. So the telco considered its options. "We looked at everything from doing nothing

like they wanted to have their cake and eat it, too," says Richard Klugman of Paine Webber. "I would have liked to see them spin off." "It wasn't necessary to do this particular transaction," agrees a Merrill Lynch analyst. "It would have been better to do a complete spin," she says.

Certainly, however, the risk has been diminished somewhat for those interested in the core communications stock. Leach notes that U S West stock was used as an acquisitions commodity when the telco purchased cable properties in July 1994. Under the new scheme, Media Group stock would be used to finance such ventures. "If Media Group has a horrible quarter, it won't affect the Communications Group. It becomes its own currency without affecting core share-

more value for shareholders. "When you buy stock, you're buying a claim on the ownership of the company," he says. "When you buy a letter stock, you don't own the assets. You don't own anything but a piece of paper."

Klugman looks for a "six-month seasoning period" to see how investors react. So far, Communications Group has traded higher than Media Group. "It makes sense it would," says Leach. "U S West Communications represents about 80% of the company." But she admits the jury's still out on the RBOC's strategy. "It's a little soon to tell. We're still trying to work out basic things, like how the stocks are listed. It's going to be a while before investors at large understand."

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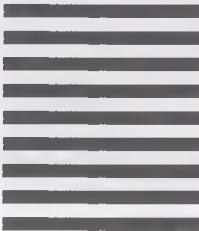
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■ FINANCE

DIVIDE AND CONQUER

U S West separates its common stock to placate investors, Wall Street.

Patty Wetli
Associate Editor

While AT&T goes about the business of "trivesting" itself, U S West believes bigness has some benefits. The RBOC recently introduced two new classes of common stock—one to represent the telco's core telecommunications business and another for U S West Media Group (an amalgamation of multimedia, wireless, directory and international businesses)—rather than spin off the new ventures. "What it does is clarify for the investment community the performance of the two businesses," says spokesperson Lois Leach.

"Tracking" stock separates the cash flows and earnings of the two groups and allows investors to pick whichever stock better suits their particular strategy. The Communications Group will appeal to those who are yield-oriented and willing to tolerate modest growth for a stable dividend and steady revenue stream. Those seeking long-term growth and higher risk, and hopefully greater return, will be attracted to the Media Group.

"We were actually alienating investors on both sides," says Leach. The RBOC's aggressive diversification plans penalized core stockholders, who objected to the earnings dilution created by dalliances in Media Group-type businesses. Conversely, those interested in high growth were turned off by the company's staid Bell image.

"Wall Street analysts were telling us for a year to do something different;" the corporate stock was undervalued because it was perceived as a "mixed bag of assets," says Leach. So the telco considered its options. "We looked at everything from doing nothing

to a full-fledged spin." The time seemed right to separate the two groups since many of the newer businesses had matured "well past the infancy stage," she says. "We sort of had to let those developing businesses gain critical mass."

But rather than completely spin off the Media Group, the RBOC decided on the tracking stock option "to maintain the advantages of being one company," including one board of directors, a consolidated

holders," notes the Merrill Lynch analyst.

It makes Communications Group a "pure play telco with very low risk," she adds. Which is not to imply there's little else to recommend the core stock. According to the analyst, there's much to like about the Communications Group, including the fact that U S West leads the RBOCs in line growth and is situated in a high-growth region of the country. At the same time, the 14-state territory is sparsely populated, making it less attractive to competitors than a company such as Pac Tel, which has most of its eggs in a one-state basket. "There are some positives in the local phone business," she concludes.

But both analysts note that without a complete separation, U S West still has to guarantee Media Group. "They'll always have the telco to bail them out," says Klugman. "That's a little bit of a negative." He believes a

spin-off would have produced a truer evaluation of the two groups' worth and created more value for shareholders. "When you buy stock, you're buying a claim on the ownership of the company," he says. "When you buy a letter stock, you don't own the assets. You don't own anything but a piece of paper."

Klugman looks for a "six-month seasoning period" to see how investors react. So far, Communications Group has traded higher than Media Group. "It makes sense it would," says Leach. "U S West Communications represents about 80% of the company." But she admits the jury's still out on the RBOC's strategy. "It's a little soon to tell. We're still trying to work out basic things, like how the stocks are listed. It's going to be a while before investors at large understand."



tax return and consolidated balance sheet.

Reaction thus far has been mixed. "It's like they wanted to have their cake and eat it, too," says Richard Klugman of Paine Webber. "I would have liked to see them spin off." "It wasn't necessary to do this particular transaction," agrees a Merrill Lynch analyst. "It would have been better to do a complete spin," she says.

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■ LOCAL COMPETITION

HOW WILL SBC'S ONE-STOP SHOP PLAY IN ROCHESTER?

An FCC waiver will allow the RBOC to bundle landline and cellular service outside its traditional serving area.

Patty Wetli
Associate Editor

SBC chief Ed Whitacre promised customers a one-stop shop, and now the company is taking that strategy on the road.

The FCC recently approved the RBOC's request to integrate cellular and landline local telephone service outside its five-state territory, waiving a rule that requires Bell-affiliated cellular carriers to offer landline services through a separate subsidiary.

"Our market information tells us our customers really are desiring this one-stop world," says SBC spokesperson Dave Senay. "This is an important step. We're the first RBOC to have such waiver relief. It's another step forward for SBC to become a total communications provider."

That's the waiver's importance on the macro level, he explains. The waiver applies to all regions outside SBC's territory and even in-region where the RBOC is not the providing LEC. On a "micro level," the company plans to put the waiver to first use in Rochester, N.Y.

STRONG ROOTS

"Our roots [in Rochester] go back to 1986," says Senay. As a Cellular One provider, the company has considerable cellular presence. "We have a long-standing relationship with customers," he says. "It's not as though we've just arrived."

With the waiver, the RBOC can trade on its existing customer base and name recognition, which should give SBC a leg up over other telcos aiming to take advantage of incumbent LEC Frontier Corp.'s open invitation to competitors.

In fact, Senay doubts the RBOC would

be pursuing landline in Rochester were it not for the cellular stake. Rather, the move is part of the RBOC's long-term strategy to expand and build on its cellular presence.

Though rumblings out of Rochester indicate all is not rosy—competitors complain profit margins on resale are too narrow—SBC is not dissuaded from entering

THIS IS NOT AN EXPEDITION. WE'RE GOING TO PROCEED ON A STATE-BY-STATE BASIS, WHERE WE CAN, TO BUILD ON AN EXISTING PRESENCE.

the fray. "We have not decided how we're going to sell the local service," says Senay. With facilities-based service on one end of the spectrum and total resale on the other, he says there's "a lot of room in between the two. We're not sure where we'll fall."

The company is confident it can overcome difficulties by providing a "better product offering." And it will leverage years of experience in the local landline business. "We'll let customers vote with their wallets," says Senay. "There's a strong chance to win some people over."

Exactly how the RBOC will woo them remains to be seen. Services will be offered sometime after mid-1996, but "we're not ready to talk specifics of marketing." Nor has the company settled on a brand name. "The FCC waiver says we can integrate cellular and landline," Senay explains. It doesn't specify under what name, just as long as it's a separate entity from Southwestern Bell Telephone.

But those are just minor details in

SBC's grand scheme. The company is not approaching Rochester as some sort of trial. "This is not an expedition. This is not a step we've taken lightly," Senay stresses. "It's part of a long-term strategy. We're going to proceed on a state-by-state basis, where we can, to build on an existing presence."

He notes that in Houston, SBC has set up retail service stores where customers can walk in and purchase everything from telecommunications equipment to caller ID. "We've already got a one-stop concept in place; we're determined to expand."

SBC'S KIND OF TOWN

Next up on the one-stop agenda: Chicago. The RBOC has filed a petition with the Illinois Commerce Commission to provide local landline service in Chicago. With FCC waiver already in hand, SBC then could bundle wireline with its existing wireless offering. "We already are in Chicago in a big way," says Senay. "We're not on the outside looking in; we're on the inside."

But he acknowledges that SBC likely will face fierce competition in the form of fellow RBOC Ameritech (see related story, page 16). "We expect a tough competitive situation," he says. "That's fine."

Not one to back away from a fight, SBC seems intent on moving forward, and out of region, with its avowed one-stop strategy. The FCC waiver and service bundling in Rochester are just an "important first step in this evolution." ■

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■ LOBBYING

WHO NEEDS ASSOCIATIONS?

Sprint's decision to pull out of USTA has some questioning the worth of industry-specific associations in a converging marketplace.

Deborah Eby
Washington Editor

Sprint's recent withdrawal from the U.S. Telephone Association has forced USTA to confront publicly what many groups' boards are pondering in private: How can associations that represent one industry segment cope in a converging market?

"It doesn't take a rocket scientist to figure out why [Sprint] did this," says USTA president Roy Neel. "Clearly the interest of their long distance company prevailed" at a time when LECs—especially the RBOCs—are brawling with IXC over national telecom reform legislation. When the dust settles, USTA would be happy to welcome Sprint back into the fold, says Neel.

But Sprint cited differences with USTA beyond legislation, including FCC policy, and predicted further disagreements lie ahead. The incident underscores a trend most telecom associations face, according to Alan Pearce, president of Information Age Economics. "They started as fairly narrow issue organizations. As their members become involved in other aspects of what is a converging industry, a single trade association couldn't represent them on all issues."

LONE RANGERS

This fragmentation leads to a second trend, says Pearce. "These trade associations are now being delegated to playing a more minor role. The companies themselves and their chief executive officers are beginning to do the lobbying and the schmoozing and the wining and dining and taking charge of the contributions to politicians themselves."

A prime example: TCI's John Malone. "Even though he kicks into the National Cable Television Association [NCTA], he



TIA president Matthew Flanigan



USTA president Ray Neel

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KEEP DOWN COSTS AND
GIVE MORE BANG FOR
THE MEMBERSHIP BUCK.
WITNESS TIA AND
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COMPETE WITH ANY
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TIONS. BUT MANY OF
OUR MEMBERS ARE
GOING TO BECOME ONE-
STOP SHOP
OPERATIONS.**

nonetheless plays a prominent role independently on all public policy issues," notes Pearce. "He probably spends much more time handling that aspect of his business today than he did 10 to 20 years ago."

Pearce also points to NCTA's decision several years ago to replace its highly-paid and controversial president and CEO James Mooney with his lower-key second-in-com-

mand, Decker Anstrom. "He's relegated to a secondary role," maintains Pearce. "The hot shots like [Time Warner's] Jerry Levine and John Malone carry their own water now, and they say to Decker Anstrom, 'You do this, and you do that,' and he does it."

"People who head associations will not be as prominent today and tomorrow as they

continued on page 26

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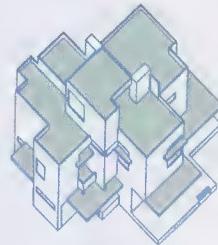
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Circle 131

MONITOR

ASSOCIATIONS

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have been in the past," concludes Pearce. Trade groups likely will take on activities, such as industry-wide research, that a majority of members can support.

NOT DOWN FOR THE COUNT, YET

Neel insists that "national associations have enormous political credibility as representing an entire industry." Granted, the RBOCs created a separate Alliance for Competitive Communications to lobby on telecom legislation. But "the fact that a thousand small telephone companies support the [Bells] on their efforts to compete in the long distance

THERE IS THE MANTLE OF BEING ABLE TO REPRESENT THE MANY RATHER THAN JUST A NARROW COMPANY INTEREST.

business is a huge asset, and they know it," declares Neel.

Competitive Telecommunications Association (CompTel) president James Smith says similar circumstances hold true for the IXCs that formed a separate legislative lobbying group. "AT&T would tell you, I think, that they need to have the smaller long distance companies in the Competitive Long Distance Coalition that's fought so hard on the legislation. There is the mantle of being able to represent the many rather than just a narrow company interest."

Nonetheless, association chiefs admit they must retool their organizations as members branch out from core businesses. "It is very clear that 10 years from now, very few companies are going to be pure long distance service providers," predicts Smith. "They are going to be full service providers, at least through local resale."

To serve members' new interests, CompTel is "in regular and in some cases intense contact with Bell companies in working out the operational details of what kind of local resale product they will be giving long distance providers."

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ASSOCIATIONS*continued from page 26*

Other group leaders sound similar themes of broadening member services and cooperating with other associations. "We're moving quickly to bring in expertise to expand our reach into the wireless, video and international arenas"—and eventually the long distance business, says Neel. "We're not trying to compete directly with any of these other trade associations. But many of our members are going to become one-stop shop operations."

He sees an "enormous opportunity" for new association alliances once adversarial lobbying is past. "The people who run these associations—we all have known each other a very long time. I think you will see more aggressive efforts at cooperation on areas of mutual interest than we have ever had before."

Interconnection/interoperability standards for carrier networks is an example,

continues Neel. "If we don't get together with these other affected industries—cable, long distance, wireless and others—then the government's just going to do it for us. It would be much better if we could find the

EACH PARTY IS GOING TO WANT TO MAKE SURE THAT THEIR POSITION IS BEING ADVOCATED UNIQUELY.

common, most efficient working ground and present that to the regulators" rather than deteriorate into "squabbling around the fringes of it."

BENEFITS OF COOPERATION

Cooperation can help keep costs down and give more bang for the membership buck, notes Telecommunications Industry Association (TIA) president Matthew Flanigan. He points to TIA and USTA's joint owner-

ship of the mega-trade show SUPERCOMM, and the formation of PCS standard-setting Joint Technical Committees with the Alliance for Telecommunications Industry Solutions.

Despite mergers, alliances and convergence, association leaders see their groups remaining sound through the transition to a fully competitive telecom industry. "Companies will be looking to have their core businesses focused on by their traditional organization," says Thomas Wheeler, president of the Cellular Telecommunications Industry Association (CTIA).

Wheeler notes that nothing precludes a company's various subsidiaries from joining separate associations. "Each party is going to want to make sure that their position is being advocated uniquely. You don't want your message in public policy arenas so diverse that people don't know what you stand for."

Although NCTA members still have more things in common than not, spokesman Rich D'Amato describes the whole communications industry as "a child that's outgrown its clothes. It's going to have to come up with a sort of new dressing because the companies are going to be different. Once you begin breaking down the barriers between companies operating in the marketplace, you also wind up changing the way the associations that represent these companies are going to behave," he says.

"As companies begin to look a little more like each other, we are going to have to question who we are representing." ■

CORRECTION

In the Oct. 15 issue, *America's Network* erroneously reported that the Illinois Local Number Portability (LNP) Workshop had chosen an architecture developed by U.S. Intelco Networks and Stratus Computer as its long-term solution to number portability. Actually, LNP chose a proposal developed by AT&T.

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■ LOCAL COMPETITION

DEVIL IN THE DETAILS

Five reasons local loop competition isn't right around the corner.

Vince Vittore
Associate Editor

Competitors to local exchange carriers (LECs) operate more than 500 networks around the country and are expected to earn more than \$1.2 billion in revenues by yearend. So competition for the local loop is here, right? Wrong.

"We could get every regulatory requirement we want, but we could be sitting in our graves waiting for the RBOCs to implement all the changes," says Tom Morrow, president of Time Warner Telecommunications.

If history teaches us anything, hashing out the details of local competition—interconnection, local number portability, reciprocal compensation, etc.—will make the last three years of regulatory fights look like a picnic.

By the numbers, competitors have a long way to go—despite cries to the contrary from LECs who still control about 99% of the \$90 billion local exchange market. Numbers aside, there are five major reasons why RBOCs and major Independents will continue to dominate local switched services.

1. INTERCONNECTION WILL BE MORE DIFFICULT THAN ANTICIPATED.

Interconnection itself is not a major technical feat, though there are some bugs to

work out, according to those in the trenches. The biggest obstacle is negotiating details such as collocation, unbundling, reciprocal compensation and, most importantly, pricing. "We still don't have permanent interconnection standards or processes, and it doesn't look like we're going to get them soon," says Heather Gold, president of the Association for Local Telecommunications Services (ALTs), which lobbies for competitors on Capitol Hill.

At its most basic level, interconnection means different things to different LECs. Frontier Corp. has unbundled just about every portion of its local loop. At the opposite end of the spectrum, U S West has unbundled its loops in two sections—between the end office and the tandem, and the end office and the customer location, says Mark Reynolds, U S West director-interconnect services. "That's just about as far as anybody would need to go. It's very costly to unbundle a highly integrated network. But we're not opposed to unbundling."

Competitors disagree and want all LECs to follow Frontier's model in Rochester.

More contentious is the pricing issue, specifically how LECs price interconnection services. Competitors charge that most arrangements proposed by incumbents don't allow enough margin to make competition economically possible.

Additionally, competitors claim they are paying for inefficiencies of the RBOC network and could end up paying more for the piece parts than for the whole system. "It's a great way to hide the cost," D. Craig Young, president and COO of Brooks Fiber Properties, says of the current pricing schemes.

Competitors also object to the universal service subsidies wrapped into interconnect charges and want a separate mechanism for funding the program.

LECs respond by saying competitors want pricing far below cost and claim pricing is based on interconnection rates given to interexchange carriers. Additionally, universal service subsidies must be included until competitors begin serving the same mix of residential and business subscribers as LECs, says Reynolds, noting about 75% of U S West's lines operate at below-cost rates. "If I were an interconnector, I'd buck [the subsidies] too. But it's kind of like your dues to be in this type of business."

There has been talk at the federal level of requiring LECs to sell interconnection at cost. But some competitors fear the mandate could apply to their interconnect prices with IXCs. "We don't want to put all our eggs in one basket," says Darryl Ferguson, president of Citizens Utilities, which owns Electric Lightwave Inc. (ELI). "As much as you'd like to cut a deal with

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Circle 122

LOCAL COMPETITION

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the large IXCs, you have to ask yourself what their intentions are two or three years down the road."

2. LOCAL NUMBER PORTABILITY IS IN ITS INFANCY.

Number portability is on the fast track, but even its proponents say it will be a few years before a real solution is ready. And once technical specifications are completed, the big issue will be deciding who pays for it.

The Illinois Number Portability Task Force, which chose a long-term solution from AT&T, and a trial in Washington have proven a database architecture can work. But several peripheral issues will take months and perhaps years to hammer out. First and foremost, who administers the system?

Bellcore, which heretofore has administered the North American Numbering Plan, is not acceptable to competitors because of its RBOC heritage. Finding a "neutral third party" will take months, and transitioning could take years. And if regional databases are the preferred solution, a national administrator may not work.

Secondly, who pays for the databases and links to carriers? "It's certainly not the obligation of all of us to pay 100% of number portability," says Time Warner's Morrow. "If we're not careful, we'll find ourselves paying for the LECs' AIN under the guise of number portability."

The goal is to work out a cost-share arrangement, something few are exploring at this point. Proposed federal legislation leaves much of the detail work to the FCC, which could be stripped to the bone by cost-cutting measures.

"I would think we're two years away" from a real number portability solution, says Reynolds.

3. BACK OFFICE INTEGRATION WILL TAKE MORE RESOURCES THAN COMPETITORS ANTICIPATE.

Almost a year after Frontier opened its local loop to competitors, newcomers are finding that connecting switches is the easy part.

"The back office stuff was very difficult. That absorbs an enormous amount of resources," says Morrow. If competitors aren't careful, they could become "victims of the problems telcos have with back office systems."

For real competition to occur, multiple facilities-based providers must offer a full slate of switched services. "If you don't offer end-to-end service sets, it's going to be very difficult to compete," says Young. And that will require integrated support systems.

"I think what we've done as an industry is we've underestimated the task," adds Ferguson. "We've underestimated the resources it takes to provide basic service."

4. STATES AND MUNICIPALITIES WILL HAVE TROUBLE DEALING WITH COMPETITION.

Most carriers have focused lobbying efforts on state PUCs. But as states with deregulation have discovered, dealing with major telecom issues is much more complex than doling out license plates.

"The stakes were so high, it made compromise extremely difficult," says Stephen Mecham, chairman of the Utah Public Service Commission, which recently completed its rules for local competition.

And even if federal legislation is passed, many tariff details still would fall to state commissions, something few are prepared to handle.

Also, states with little competition may be hurt most as they try to play catch-up, says Joe Miller, former chairman of the Idaho Public Utilities Commission. In many cases, their goal has been preserving universal service and dealing with the RBOCs' desire to escape rate-of-return regulation, something he advocates as key to competition. "The important point is once regulation is not concerned with protecting the incumbents' rate of return, the fundamental change can take place. With universal service taken care of and competition existing, regulation won't have to limit profits."

Municipalities also could play a major role. In addition to charging competitors for access to rights of way, some cities force competitors to go through certification

processes different from those at the state level. One city in Utah has even shut out all competitors, hoping to offer municipal telephone service itself (similar to municipal water and sewer service). "Neither the PSC or any other state agency has authority to do anything about it," says Mecham.

"The problem here is cities are hard strapped for cash and look at access as a revenue source," adds Harold Crumpton, a commissioner on the Missouri Public Service Commission.

5. IT'S IN LECs' INTEREST TO DRAG THEIR FEET.

Despite rhetoric to the contrary, LECs continue to slow competition. And until they're given what they want (access into long distance), it benefits them to put up as many roadblocks as possible.

Case in point: Ameritech. The RBOC proclaimed itself a pro-competitive force since introducing its "Customers First" plan two years ago. Competitors tell a different story. "I filed for certification in Ohio and I've lost count on the amount of lawsuits filed [by Ameritech]," says Morrow. "This from a company that advertises itself as pro-competitive. It's all just great PR."

Other RBOCs, particularly U S West and Southwestern Bell, receive more than their share of competitors' criticism. "There's no doubt [U S West Chairman] Dick McCormick made a decision to go slow on competition," says Citizen's Ferguson, adding the RBOC has met only 15% of its interconnection commitments to ELI.

It doesn't have to be this way, though, he concludes. "We have two major obstacles, and both—fair interconnection and pricing—are in the control of LECs. They've got to have the ability and the heart to offer it. It's a real struggle we've got in front of us."

Even regulators are whispering about stall tactics. In Utah, three companies have been authorized to provide competitive services, according to Mecham. In all three cases, U S West appealed because of the way certificates were issued. "I guess in about three years we'll find out who's right, and by that time the game may already have been played." ■



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MARKET ASSUMPTIONS DRIVE POWER REQUIREMENTS

Choosing the right service model can change radically how and where networks are powered.

Mark Dziatkiewicz
Contributing Editor

It's one thing to talk about market-driven technology, but quite another to implement it effectively and efficiently. Powering HFC broadband interactive networks is no exception. Power engineers increasingly must understand, accommodate and meet shifting business assumptions.

The shifts result from competition that, for the most part, doesn't exist—yet. But it's coming, and competitive assumptions affect every operator's HFC power network. "One-size-fits-all" solutions don't exist.

BUSINESS DECISIONS

HFC power solutions depend on where you come from and where you're going. Cable MSOs' primary consideration is entering the traditional POTS market; penetration issues play a close second.

The decision to offer telephone service—of some variety—need not impact power requirements and designs significantly, but market reality dictates it probably will. Powering subscriber equipment from the network is the initial decision hurdle. Cable operators first must determine if life-line service is an objective. And general consensus seems to indicate it is.

"There's quite a bit of interest in changing power configurations, and one main driver is interest in providing telephone service on cable," says Jim Farmer, Antec chief technical officer. "If the cable company

offers a lifeline service, it's going to have to work even when the power grid is down. The obvious solution is powering telephone equipment from the cable plant and then providing uninterruptible power to the cable plant." Neither circumstance exists today, so

the change represents a considerable investment and network philosophy shift. However, it seems the most popular and logical decision.

"The cable industry has to make a decision whether their telephone service is life-line or second-line service," he continues. "Second-line service doesn't have to have uninterruptible power. If the second line is a modem or fax line and power at your house

goes down, what you're hooking up to that line is down also." It's a logical assumption, but such logic may not hold up under competitive market conditions.

Telcos already offer network-powered second-line services. If competitive second-line services are priced equivalently, the die may be cast. "The general consensus is that telephone companies are going into video, but not as a reduced- or low-cost service," explains Ron Foster, vice president-marketing and business development for telecom products at Scientific-Atlanta. "For an MSO to counterattack with low-cost telephony probably won't be a very effective counterattack. At a business level, there's a belief they have to offer something as good as the phone company, otherwise they'll have to compete on price, and they really don't want to do that."

TELCO DECISIONS

Business decisions affect HFC powering from the telcos' perspective as well. For them, market entry isn't a question, but network integration is a major decision with tremendous power implications,

determining primarily what and when power requirements exist. Examples include fully-integrated replacement solutions such as SNET and Pacific Bell's down to interactive broadband-only networks such as Ameritech's.

Including telephone service up front places telcos in situations similar to cable operators by increasing immediate powering requirements. But it also raises one powering issue that differentiates the two—penetration.

Offering telephone service creates the single largest powering requirement. But cable operators and telcos work from opposite ends in penetration assumptions. By building replacement telephone network architectures and adding broadband on top, telcos include 100% powering assumptions at the start. "Going from telephony to broadband has little or no impact on powering," agrees Farmer.

Cable operators face the opposite challenge. Penetration assumptions take them back to cable's early days—who's going to

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LESSON LEARNED—Hurricane Hugo showed Concord (N.C.) Telephone how vulnerable it was to a disaster.

CASE HISTORY

A POWERFUL LESSON

Concord Telephone learns 'just enough' back-up power is not enough in disaster situations.

Jerry McClellan

When Hurricane Opal headed into the interior of North Carolina earlier this year, Concord Telephone Co. (CTC) must have experienced a feeling of déjà vu. In 1989, when Hurricane Hugo ripped through the Charlotte area, CTC suffered some of the worst damage in its 98-year history. This time, though, the telco was prepared.

Located 23 miles north of Charlotte, CTC provides service over a 750-square-mile area dotted with bedroom communities in the major portions of Cabarrus and Stanley counties and the southern half of Rowan County. Many residents commute to Charlotte for work and expect to find the same reliable telephone service at home. "People want to have the same service in their houses that they have at their office," says Troy Barnhardt, digital switch manager for CTC.

In addition to keeping up with customer demands, CTC also has to keep an eye on the competition. Time Warner already oper-

ates a competitive loop in downtown Charlotte and likely will expand it to CTC's area.

"We could delay it by going to Judge Greene and saying we're a small telco, and we could holler wolf, but that's going to give our customers a bad taste," says Barnhardt.

So CTC has responded with what it calls a "conservative progressive" management philosophy. To survive for almost a century as an Independent LEC, it has had to possess both of these seemingly contradictory traits. For the company, conservatism means being absolutely certain that a new technology will improve customer service. Progressive means if it is confident a new technology will indeed benefit customers, management doesn't hesitate to implement it.

For example, in 1986, CTC was the first telco in North Carolina to implement a 100% digital conversion, upgrading five central offices and the services provided to 82,000 customers.

At that time, the company also began

studying the most cost-effective way of extending digital signal and office equipment from the CO to remote customer sites. As a result, the carrier serving area (CSA) concept was introduced. Under the plan, high-capacity fiber would serve as the umbilical cord carrying digital signals to the center of each CSA loop, where subscriber line interface circuits (SLICs) would convert digital signal to analog and send it a relatively short remaining distance over existing copper pairs. Most loops are within 12,000 feet of a customer.

The plan not only improved transmission quality with the decreased distances but cut down the expense of maintaining old wires and installing new copper. In addition, the CSA concept lets CTC offer new customer services—such as broadband video—as they become available.

However, by moving equipment off site, the company also exposed itself to service failures caused by commercial power outages. But at the time, the company believed its back-up portable ac generators were enough. And besides, what could go wrong with six- to eight-hour battery backup installed at each remote site?

HELLO HUGO

Hurricane Hugo, for one. In 1989, when the fierce storm devastated CTC's entire service area, the company found itself searching for an alternative. "Hugo told us we didn't have enough generators provisioned," says Barnhardt. "We had ac generators, but we didn't have enough."

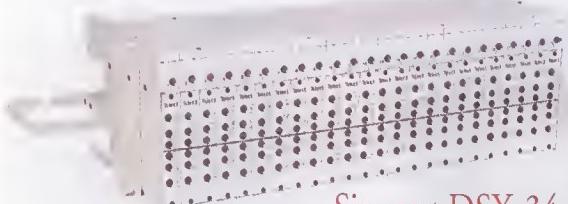
After the storm had passed, CTC discovered 500 telephone poles and many miles of cable had been downed. Even worse, the company found that its few remote sites lacked portable battery units to supply continuous power for a long period of time. The back-up batteries simply ran out before anyone could get a generator to the sites, forcing the company to sacrifice service. "We were putting the ac generators on line and recharging the batteries, but we just didn't have enough to go around," says Barnhardt. "We really couldn't get ahead. As a result, some people were without service for almost two weeks." Eight-hour backup, it turned out, just wasn't enough in the face of a storm as violent as Hugo. It was clear the

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TECHNOLOGY FOCUS: POWER

CONCORD

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company needed a different kind of back-up power insurance.

Because continuous service is becoming increasingly necessary in a competitive environment, and because the company plans to install 120 CSAs, making the right strategic decision for optimum auxiliary back-up power was of paramount importance.

Among the six proposed solutions from vendors, four centered on the traditional ac generators the company had been using. Two other vendors recommended dc generators.

From the start, the company knew of several drawbacks to the ac systems. "The big one was the transfer switch," says Barnhardt.

Without this switch, if the commercial power came on while the generator was in operation, it could overload or burn up by

feeding back into the ac network, damaging the company's power systems. When commercial power returns, the switch must be reset. And though this process was automated in the CO, it was a manual procedure at the smaller CSAs. Furthermore, transfer switches were nothing but a maintenance headache, a constant source of repair and expense.

On the other hand, dc generators are much simpler, though there are some drawbacks. The dc generator is an intelligent device that monitors dc battery voltage. When the dc output current falls below a pre-specified level, it automatically shuts down. There are no switches to throw and no mechanical or electronic disconnect switches; dc generator operations do not require human intervention.

CTC eventually settled on an uninterruptible battery system (UBS). For the previous five years, the telco had employed UPSs to

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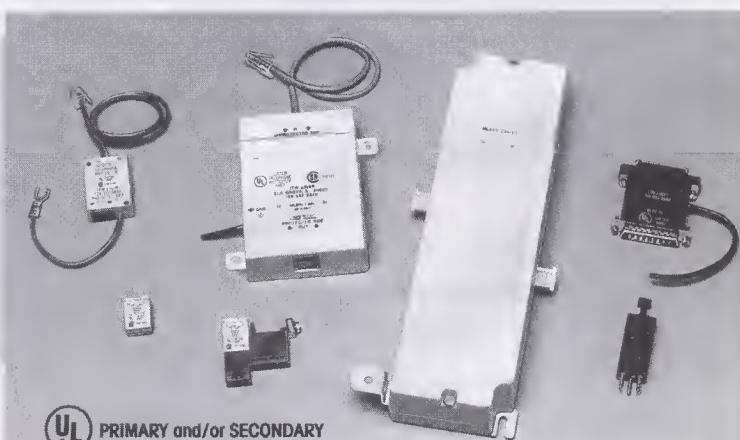
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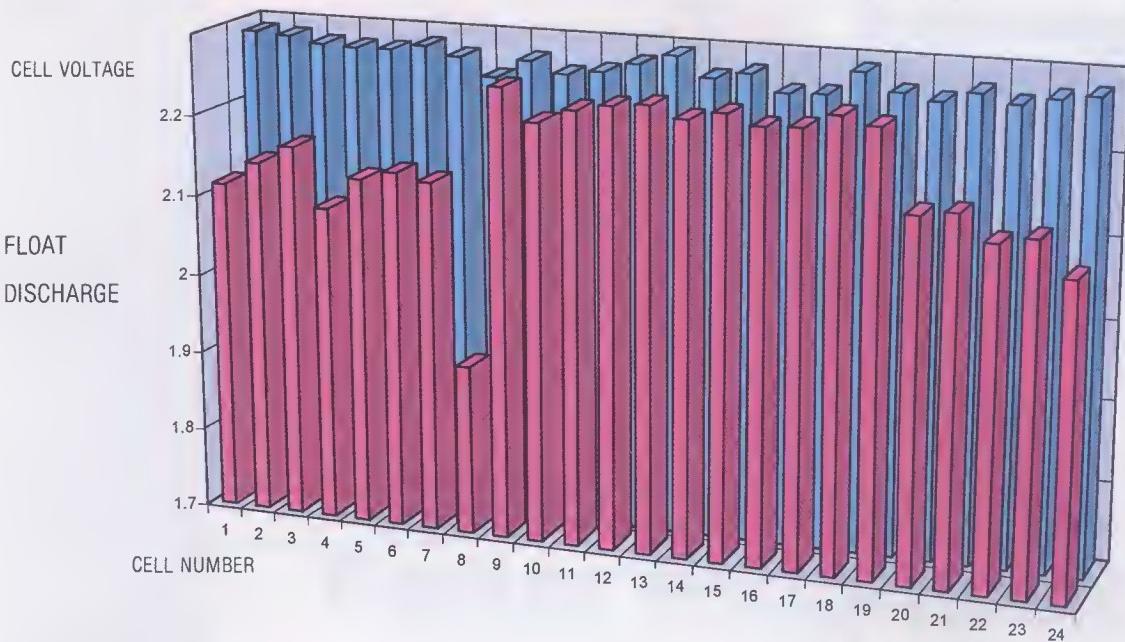
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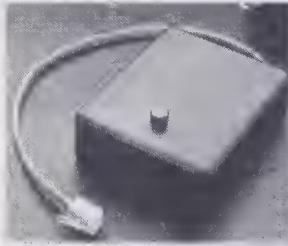


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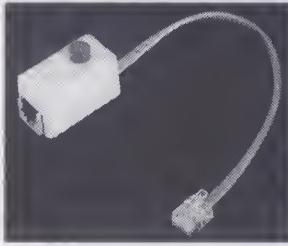
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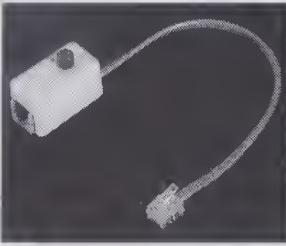
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TECHNOLOGY FOCUS: POWER

CONCORD

continued from page 38

protect operator services positions, as well as for CO computer application. "Our decision was made mostly because of reliability," says Barnhardt.

The first two UBS units were installed in May in the residential subdivisions of Hidden Pond (768 lines) and Sheffield (450 lines).

Ease of installation also was a big factor since the telco didn't want to encounter another hurricane without the added protection.

Both units took less than two days to install, test and turn up mostly because there were no cumbersome transfer switches and only a few connections to be made, according to Barnhardt.

The units also are compact compared to the old ac generators. Instead of the 4' × 8' pad, the unit was about half the size, requiring a 3' × 4' print.

In addition to the units, the telco also installed an electronic security, alarm and system monitoring system.

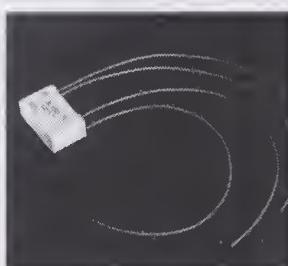
Through an RS-232 interface and some proprietary software, CTC technicians now can monitor the status of the UBS and watch for unexpected events from any PC. They also can check fuel levels, running hours, time until the units need servicing and the general generator condition.

"We could even turn on a microphone and listen to what's happening in case someone breaks in," adds Barnhardt.

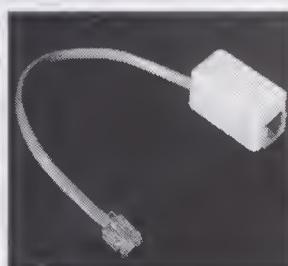
Since installation, the units have been put to the test. From May 9 to June 19, the telco experienced seven commercial ac power outages that lasted long enough to require reserve power for the SLIC equipment. Residents of Hidden Pond and Sheffield had continuous dialtone. ■

Jerry McClellan is executive vice president and general plant manager for Concord Telephone, Concord, N.C.

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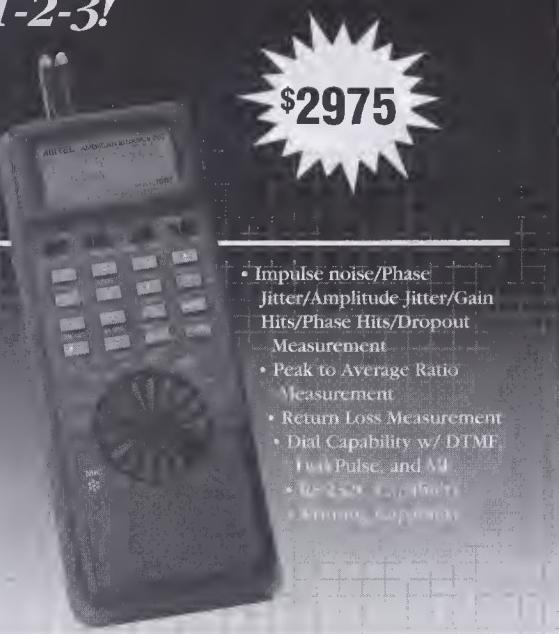
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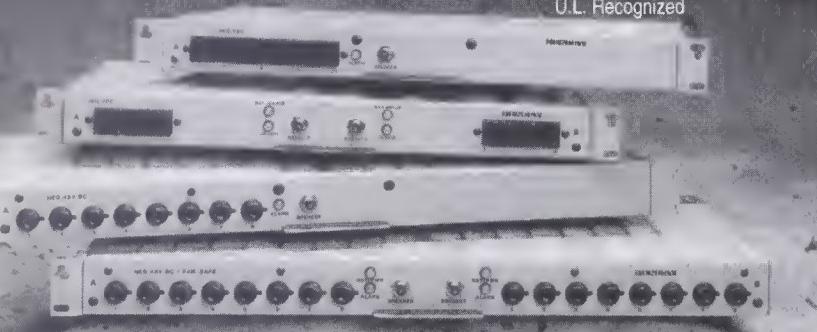
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POWER

continued from page 34

buy?—making power forecasts more difficult but not insurmountable. "You would make an assumption on penetration, like 2%," continues Farmer. "If you see you're getting close to that point in a node, you might have to add some auxiliary power supply or beef up one central supply."

Scientific-Atlanta's Foster agrees. "As more and more people hook up, you'll

THE CABLE INDUSTRY HAS TO MAKE A DECISION WHETHER THEIR TELEPHONE SERVICE IS LIFELINE OR SECOND-LINE SERVICE.

exceed the capacity of the plant and you'll do the same as fiber and split up the power," he offers. "One advantage of upgrades is it's unlikely subscribership will increase linearly. Some neighborhoods will be more successful. If you guarantee 100% availability from the start, they spend money and engineer for the max on day one. A distributed power approach lends itself nicely to a growth situation because you don't have to put all the equipment out there on day one."

POWERING CONSEQUENCES

While business assumptions and decisions complicate powering architectures, power engineers' tasks remain straightforward—providing sufficient reliable and safe power.

Accomplishing this involves moving to 90vac for most network operators. "Ninety volts is an attempt to get more power down the cable," explains Foster. "The only reason to go from 60 to 90 volts is to overcome losses and keep the amperage down. With current limitations of coaxial cable, you cannot get enough power down the line to supply sufficient power to the devices unless you go to extremely high voltage. And devices are limited in the number of amps they can pass. But there is concern in operating at 90 volts."

continued on page 44

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- 18 189 Long-Distance/Interchange Carrier
- 19 185 Competitive Access Provider (CAP)
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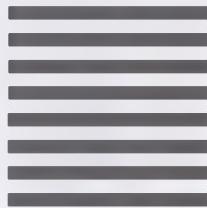
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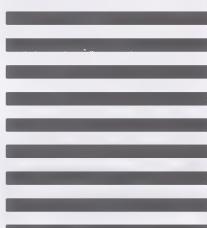
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Accomplishing this involves moving to 90vac for most network operators. "Ninety volts is an attempt to get more power down the cable," explains Foster. "The only reason to go from 60 to 90 volts is to overcome losses and keep the amperage down. With current limitations of coaxial cable, you cannot get enough power down the line to supply sufficient power to the devices unless you go to extremely high voltage. And devices are limited in the number of amps they can pass. But there is concern in operating at 90 volts."

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POWER ARCHITECTURE

CENTRALIZED TO THE MAX

Network reliability is every carrier's concern, but providing it is a singular experience—philosophies and local conditions vary. SNET's central office-based HFC power solution is a case in point.

Retaining traditional telco reliability roots, its integrated HFC network powers local telephone service from the central office (*America's Network*, Nov. 15). Reliability is the driver, according to Bill Seekamp, SNET spokesperson. "We were very concerned with maintaining or even improving the reliability the people in Connecticut have come to think of with telephone service."

Providing high reliability means an innovative HFC implementation. "Most people put transformers and things on the pole, but they aren't backed up in any way," explains Duane Elms, SNET director-advanced systems. "Centralized power in CATV says we're powering at the fiber node and backing it up to ensure reliability. All we have at the fiber node is a transformer; our backup is at the CO."

SNET's power arrangement sends 480vac on a specially-designed cable carrying fiber and power conductors through Connecticut's rocky terrain. "We can buy off-the-shelf equipment that's designed to accommodate that [voltage], including

UPSs for the central offices to provide the 480-volt output."

The high-voltage output appears more powerful than the telco likes, but it's a service necessity. "We want to maintain fairly high efficiencies in distribution, so the distance we can go depends on the load," he continues. "We can typically get 3000 feet and cover the load for the node up through to the NIUs [network interface units]."

Elms acknowledges local conditions played a big role in determining its powering architecture. "The majority of Connecticut is aerial [plant]. We have a very rocky and ledge-filled soil, and going underground is difficult to do. Almost everything goes aerial after a while," he says. By retaining its central office-based power, SNET avoids numerous right-of-way and enclosure headaches scattered throughout its service area.

Its solution, though, takes very specific circumstances to justify. "We looked at some of that and made an assessment of what the requirements would be for our network," says Barry Dent, technology consultant-power in Pacific Bell's broadband engineering group. "In some cases, the distribution of central office power for 100,000 lines would require a generator of very significant size, which we felt would have cost and exposure that wouldn't be in our best interest."—Mark Dzatkiewicz

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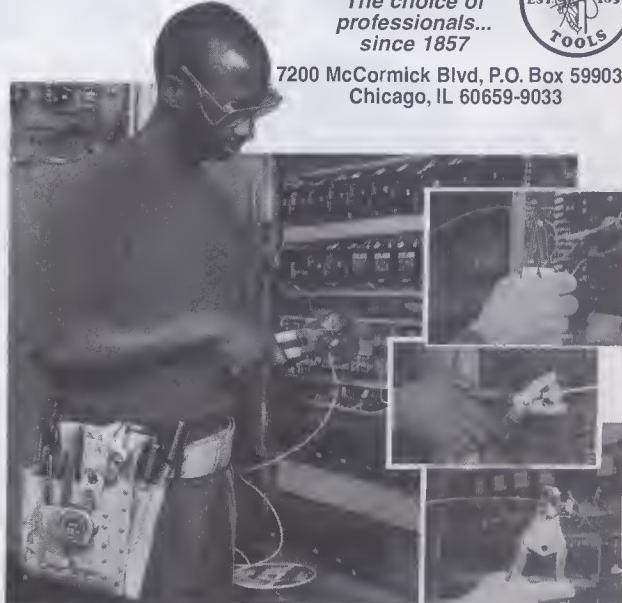
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POWER

continued from page 42

Changes in system voltage affect other network components, such as power-passing taps that can max out and limit power capacity. "We're moving to [higher] voltage, which gets current down, but on the other hand, more demand gets current back up again," adds Farmer. "The net result is currents are going up and so taps are being designed for higher current-carrying capacity."

Line frequency is another power efficiency consideration. Power efficiency can be increased by improving voltage waveforms, according to Farmer, and network operators are looking at lower power frequencies. "Every time I get a transition in current waveform—twice each cycle—I have some time period during which I can't transmit power. If I do the transition less frequently, I should be able to reduce the time during

which I can't transmit power to the load. The impact is you get a small lift in efficiency as you go to lower frequencies, but it's not as big an impact as going to a higher voltage."

THE ONLY REASON TO GO FROM 60 TO 90 VOLTS IS TO OVERCOME LOSSES AND KEEP AMPERAGE DOWN. BUT THERE IS CONCERN IN OPERATING AT 90 VOLTS.

Pacific Bell implements both in its HFC network. "The decision we made in terms of power delivered is 90vac 1Hz, and we use dc as a back-up," says Barry Dent, technolo-

gy consultant-power in Pacific Bell's broadband engineering group. "If we want to do maintenance or put the network in dc operation, it can make the switch. The California PUC said [the network] could not exceed 90 volts. The reason we selected 1Hz is based on safety and reliability. We could not see a lot of merit in using 60Hz. There are issues with human factors and overall safety."

Reliability, though, is the ultimate concern and power engineers' ultimate challenge. Regardless of who's offering it, telephone service comes with service-level assumptions, and network operators incorporate these reliability needs into HFC power designs.

"Networks are being constructed with the mind set of building the reliability of the telephone network," concludes Foster. "If you ever hope to offer a telco-class of product, it's important to offer that from day one." ■

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Circle 124

Eric Krapf
Managing Editor

ISDN is approaching ubiquity, so what better way to impress that fact on previously-reluctant customers than by orchestrating a worldwide, real-time demonstration of the technology?

Billed as the largest telecommunications event ever held, the just-completed Global '95 featured linked sites in most major cities in the U.S. and abroad. Demonstrations included remote LAN access, work-at-home applications, Internet access and distance learning.

The aim: draw in end users, dispel their doubts and myths about the technology and generally send them away from the demonstrations convinced ISDN can change their lives—and knowledgeable about how that will happen.

"The final barrier is simply education," says Blair Thomas, product marketing manager-Unix/OS2 for Eicon Technology, a Dallas-based manufacturer of networking hardware and software. Eicon is one of scores of vendors to exhibit ISDN solutions at demonstration sites sponsored by major carriers.

The average person still doesn't know what ISDN is, Thomas points out, and even those with some awareness of the technology cling to misconceptions such as believing they need to keep their analog phone service when adding ISDN. Equipment makers must take the initiative in educating users, he believes.

"We are going to drive applications," Thomas says. "We're not going to be driven by applications anymore."

ORDER TAKING

Customers should know what applications they can get, and for telcos, it shouldn't even be a matter of selling ISDN to residential and SOHO (small office/home office) customers: "They [telcos] should be order-taking," just as they do with POTS service, Thomas says.

Selling ISDN should be easier with bet-

■ ISDN

EDUCATING THE USERS



Vendors and carriers are coming together to make ISDN work. That leaves one missing piece.

ter relations between carriers and equipment manufacturers, adds IBM's Charlie Hallock. "Nineteen ninety-five is the first time the RBOCs and vendors have stopped pointing fingers at each other" over who's obstructed ISDN's progress, he says.

Hallock believes vendors have taken important steps toward making ISDN more appealing. For example, at the beginning of the year, Pacific Bell found most vendors' systems could interoperate for a single B channel, but not for two B channels bonded—most vendors' systems were proprietary. By fall, most could interoperate to provide the bonded channels' 128 kbps. "This barrier has come down, and that's a huge barrier."

Other capabilities make ISDN more affordable and accessible. A year and a half ago, CPE and access charges could

cost customers almost as much as their PCs. Anyone who thinks ISDN prices will fall to analog levels is living "in a little bit of a dream world," says Hallock, but price can be kept down by connecting one B channel to an analog port to provide an analog phone line. And in some instances, ISDN may be the cost-effective alternative: Hallock notes that in California, two analog phone lines cost more than one ISDN line. Also, some carriers will waive installation fees for customers who keep service for two years.

Another capability Hallock highlights: modem emulation, "so that you don't put that plug in and set yourself off from half the community."

ON-LINE SUCCESS

Simultaneously, ISDN's increasing acceptance in the on-line world remains crucial to its success, Hallock observes. "That's an Internet-driver part of the business, and that's a very large here and now." He notes commercial on-line providers Prodigy and America Online are providing or preparing to provide ISDN access, as are Internet access providers.

In fact, Hallock notes ISDN's growing popularity for on-line access has created a new bottleneck where on-line service providers had tuned down their offerings to accommodate a 9.6 kbps and 14.4 kbps-dominated community.

ISDN's growth has been striking: "If you'd bought ISDN in 1994, we don't know who in the world you would've talked to," Hallock admits. Today, the technology has gained sufficient acceptance in the business community that some hotels are making ISDN ports available in conference rooms.

Hallock sees ISDN driving new PC applications; he insists PC makers "should get down and thank the phone companies for this." And the phone companies, in turn, will see ever-greater reliance on the public network. "Where the data is has become as important as what the data is."

■ WIRELESS SOLUTIONS

EXTENDING OFFICE NETWORKS

Integra aims to integrate client/server, wireless.

Eric Krapf
Managing Editor

Corporations increasingly want to add mobility solutions to their existing networks and integrate them as seamlessly as possible. For 10-year-old Integra Technology, this demand is creating the opportunity to move from building client/server networks to offering complete solutions incorporating both wired and wireless technology.

"We've noticed a very quiet but steady increase in the use of wireless solutions by our customers," says chairman and CEO Dwayne Walker. Several factors make Bellevue, Wash.-based Integra the natural place for those customers to turn, he contends.

One reason: Walker himself. Before taking over Integra last February, he had spent the previous six years at Microsoft, where he oversaw the launch of the first version of Windows NT, among other projects. So he brings to Integra a "very very strong exper-

tise in integrating back into Microsoft"-based systems.

That's important because Integra's customers are interested in "wirelessly extending the things they're already doing," Walker says. "They want it to be invisible. When wireless isn't invisible to them, that is a problem."

Integra's solution: its WinBeep product suite that automates access to pagers. "Tightly integrated" with a company's operating system, WinBeep lets any user send numeric or alphanumeric pages from within the existing system. The current 50,000 WinBeep users should grow to at least 150,000, possibly as many as 200,000 in the next year, Walker predicts.

"Our customers were telling us, hey, the number one thing we want from wireless is wireless messaging," he says. For companies with LANs, the most important application "almost always is electronic mail." So WinBeep can be used not only to originate pages, but to send or forward e-mail to alphanumeric pagers or laptop computers equipped with pager cards.

**INTEGRA'S CUSTOMERS ARE INTERESTED IN
'WIRELESSLY EXTENDING THE THINGS
THEY'RE ALREADY DOING,' SAYS CEO
DWAYNE WALKER.**



Beyond WinBeep, Integra is beginning to provide solutions to meet what Walker cites as one of the fastest-growing corporate demands: mobile database access. The company's first big opportunity came when the Los Angeles County Sheriff's Department needed a solution for its commissary system that incorporated both fixed and mobile access to databases containing inmates' financial records.

For fairly obvious reasons, the county wanted to eliminate cash as a transaction medium and needed mobile workstations employees could bring to inmates. Integra's RF network provided wide-area connectivity among 10 jail sites and access to the Microsoft SQL servers where inmates' account information was stored. The solution also handles the commissary system's inventory and accounting.

Though the L.A. system uses a private network, Walker predicts public networks will be the major beneficiaries of compa-

nies' desire to use wireless as an extension of wired networks. Integra is positioning itself to take advantage of two-way wireless in the newly-licensed narrowband PCS band; Walker expects the company to develop a general purpose wireless messaging server that will support two-way messaging as well as mobile client/server applications.

'EXPLOSIVE' PUBLIC NETWORK

For current Integra customers, "the public network use is by far the biggest," and in the future, "public wireless networks are going to be explosive," Walker says.

Integra also expects its software solutions to appeal to public network carriers looking for new markets and new ways to accelerate acceptance of wireless technologies. The company likely will create a version of its technology "in the sky" for licensing to carriers as a network-based service.

An important application already rolled out: Integra is licensing WinBeep's "wireless

paging engine." Dell Computer and, most recently, Intel have agreements, with more expected. In September, every Dell server began shipping with the paging engine embedded in its SafeSite network management software, and Intel will embed the engine in its LANDesk products early next year. With the paging engine, alerts can be sent through regional or national paging services, automatically notifying LAN managers of network troubles—cutting down on response time (and calls from frustrated users).

Integra plans to continue in acquisition mode next year. This year, the company purchased Fourth Wave Software, a wireless messaging developer, and Midak International, which specializes in client/server and wireless messaging.

The company's goal, according to Walker: offer solutions for distributed, mobile workforces that knit together users and information from "mainframe to laptop and everything in between."

■ WIRELESS DEVICES

'SWISS ARMY KNIVES' FOR ROAD WARRIORS

Vendors are combining functionality on single devices for maximum mobile versatility.

Mark Dziatkiewicz
Contributing Editor

Catering to mobile professionals' needs is good wireless business strategy, but simplifying their communications processes wins customer loyalty. Three new end-user products target that objective directly.

Combining voice, fax/modem, messaging and LAN functions into wireless and wireline solutions, these products simplify communicating on the road. And while considerable wireless mobility products already exist, the combined-functionality "Swiss army knife" approach seems a logical progression.

The first integrates a cellular radio and V.32 modem in a single PC card. The PhoneCard from AirGo Communications is a Type 3 PC card containing an IS-19B-compliant AMPS cellular radio with a 1/4 wave monopole antenna and 14.4 data/fax modem. The product is intended to transform portable computers into cellular or landline phones or a full-featured cellular phone when combined with the AirGo CardPhone.

COMMUNICATION-CENTRIC

"There's a lot of problems with cellular modems you connect to your phone," explains Shon Whitney, AirGo Commun-

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WIRELESS DEVICES*continued from page 47*

ications product marketing manager. "The logistics of finding the right cable, modem and RF capability in a standard phone are complicated. If you control them all, you can get better throughput and connection rates that optimize the solution."

"What enhances our solution is we have control over the RF board," he continues. "We've taken the exterior cellular phone and put it on the card. All the logic, all the RF and all the capability is in the [Type 3] card."

Designed as a Macintosh or IBM-compatible solution, AirGo's Phone System includes software for building communication-centric applications. "You can select up to 100 names from an address book and download them to the card," he continues. "When you shut down your notebook you can plug it into a cellular handset—using the same antenna—and have a full-featured cellular phone."

DATA-INTENSIVE USERS

Also advancing mobile capability is NovaLink's GoAnyWhere modem, combining cellular and wireline modem/fax and radio modem features into a Type 2 form factor. "Most notebooks come with Type 2 slots," explains Baldev Krishan, president and CEO of NovaLink. "Some others use Type 3 cards, which means it takes up two Type 2 slots. Here you can still use the other slot for memory or LAN functions or whatever you need, but you don't need a modem because it's built in."

Targeted at data-intensive users, Krishan sees NovaLink's radio modem support for the RAM Mobile Data network as particularly significant.

"It will take a couple of years before

CDPD networks take off, so right now [one of] the only options is RAM," Krishan continues. "They have over 90% coverage and it's available in almost all metropolitan areas. We expect RAM will be very successful because they're the only ones up and working and seamless."

The company's GoAnyWhere Type 2 card modem extends to enclose its battery and radio. Using lithium ion technology, the modem delivers as many as eight oper-



PRODUCT LAUNCH - Motorola's Mariner combines modem/fax, cellular and paging connectivity.



COMMUNICATION-CENTRIC - AirGo's new product is intended to transform portable computers into cellular or landline phones.

ation hours between charges. And bundled with DTS Wireless's ZAP-it software along with its own NovaMail package, it provides wireless Internet access, e-mail, faxing, file transfer and other communications functions.

"By having wireline or cellular modem connections, if you happen to be in the office—or a situation where there isn't RAM coverage—you don't have to use an

expensive way of sending e-mail; you can use the wireline/wireless functions because it's going to be cheaper," he continues. "We're offering more functionality in a Type 2 for a price that's much more reasonable. This will be around the \$500 range."

MULTIPLE SOLUTIONS

Taking a slightly different approach, Motorola's Mariner offering provides mobile computer users with 28.8 modem/fax, cellular and paging connectivity. And recognizing occasional land-berthing needs, it also provides 10Base-T and 10Base-2 LAN connectivity.

Mariner is designed for mobile computer users who need a LAN adapter for the office as well as a high-performance modem for remote corporate network access, e-mail, the Internet or other wireless communications capabilities, the company says.

"This is the first PC card that fully realizes the multiple wireline and wireless communications solutions that current mobile computer users require," contends John Reimer, Motorola senior director-PCMCIA Products Division.

REDEFINING EXPECTATIONS

Pager functionality and LAN connectivity differentiate Mariner from the rest of the pack. Initiating wireless messages over low-cost paging networks opens up new application opportunities such as wireless newsletters, broadcast price lists or sales and service bulletins.

"With both one-way and new two-way paging features, we see the Mariner as redefining the expectations for wireless messaging for corporate America," Reimer continues.

Combined with SystemSoft's Card-Wizard Pro card and socket services software, Mariner offers compatibility with Windows 95 and all leading portable computers. And its dual RJ-11 connector allows computer and telephone to share a single phone line, eliminating cumbersome cable transfers.

Wireless or wireline—whatever the capability combination—mobile professionals have never had it so good. ■

■ NETWORK DEVELOPMENT

OBJECT TECHNOLOGY TAKING ON KEY ROLES

Versant announces relationships for network management, design and service delivery.

Eric Krapf
Managing Editor

The competitive future may seem to be taking its time arriving, and that anticipated clamor for residential video on demand and other high-bandwidth services still has yet to rise above a murmur. But companies are preparing for the day when new service creation and operating efficiencies determine winners and losers. Object-oriented technology is becoming a crucial part of that preparation.

A buzzword throughout the high-tech industry, object-oriented technology

OBJECT-ORIENTED PARADIGMS VERY NEATLY FIT INTO THE TELECOMMUNICATIONS ENVIRONMENT IF WE ASSUME TELECOMMUNICATIONS IS A COMMODITY SERVICE.

received a boost in telecommunications with a recent flurry of announcements from Menlo Park, Calif.-based Versant Object Technology, which is targeting telecom as a key market. Some 60% of Versant's business comes from interexchange and local exchange carriers and telecom manufacturers. "We've identified the sweet spot in the telecommunications industry for our technology," says Barry Wetmore, Versant's director-telecommunications.

Object technology is a natural fit for telecom, say company officials and industry observers. Because standards often are defined in object terms and telecom is a

standards-driven industry, "objects have permeated a lot of the technical environment already," says Jay M. Mellman, Versant's director-product marketing.

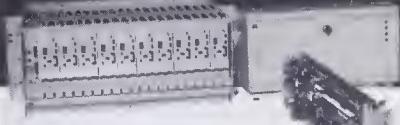
Telecommunications network management systems increasingly will be forced to handle higher traffic and more complex network elements, a task for which object technology is uniquely qualified, says Robert Rosenberg, president of Livingston, N.J.-based Insight Research. In a new report, Insight predicts the North American network management market will grow from \$290 million in 1994 to \$379 million by 1999; the worldwide market is projected to reach almost \$2 billion, with most of the growth coming in object-oriented systems, Rosenberg says.

Object-oriented paradigms "very neatly fit into the telecommunications environment if we assume telecommunications is a commodity service"—increasingly a good assumption, Rosenberg points out.

Object technology features "reusable building blocks that are highly standardized," as Rosenberg describes it. The method enables engineers to embody abstractions describing network elements and processes in standard code, which can be "inherited" from one object to a sub-object, changing only a few lines of code, explains Robert M. Freeman, Versant's vice president-marketing. Such abstractions also allow object technology to describe much more complicated, three-dimensional elements than are possible with older relational databases.

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OBJECT-ORIENTED

continued from page 49

In one of Versant's bigger telecom successes, Alcatel Network Systems announced last spring it would include Versant's object database management system (ODBMS) in its 1320NM broadband-network management product. Sonet networks and the elements composing them are too complicated for anything but object technology to handle efficiently, says Jerry Power, director-1320NM product management for Alcatel.

EASIER APPLICATION DEVELOPMENT

Furthermore, Power notes object technology lets network operators push significant amounts of code from the application to the network level. This facilitates application development, speeding new service deployment.

Most of these object technology advan-

tages are displayed in Versant's spate of recent announcements—advanced-service support, high reliability and faster service deployment:

- MediaVault, an EDS application being deployed by Sprint, will use Versant technology in multimedia database searching

AS COMPETITION STARTS HAPPENING, YOU'RE GOING TO SEE [OBJECT TECHNOLOGY] HAPPENING QUICKER THAN ANYONE EXPECTED.

by advertising firms, entertainment companies and other content providers looking for film clips. Data complexity is the main

reason for using object technology in MediaVault. "This is literally a case of, you just cannot do it" with relational databases, Freeman claims. Mellman adds that such applications represent the leading edge of broadband networking: "This is the opportunity for carriers to build demand for bandwidth."

- In another Sprint application, the carrier will deploy Versant's ODBMS in its customer information system carried by business-services sales representatives. Reps can generate sales orders automatically from the field, keeping the product catalog and sales order system in their laptops. The system will enable Sprint to eliminate complex paper forms and attendant delays due to inaccuracies and held orders. Result: the IXC expects to cut time between order and service delivery from two or three weeks to 20 minutes.

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ing and tracking process benefits from technology that can reuse objects as services are updated and build new processes from smaller component objects. Freeman confidently predicts object technology will find its way to all levels of telecom organizations, "from the belly of the beast to the tallest glass tower with mahogany rooms."

In general, interexchange carriers have been more receptive to object-oriented systems, which makes sense, says Wetmore: "They've had to respond to a higher level of competition," and have responded with the kinds of process re-engineering initiatives that RBOCs have adopted more recently.

• UK-based Mobile Systems International will use Versant's ODBMS in its cellular network planning and design tools. Again, Versant officials stress object technology's ability to handle complex, dynamic network configurations.

Though object technology clearly has momentum, obstacles remain—entrenched interests and legacy systems chief among them. A few carriers are trying to steer a middle path by putting some object-oriented technology on legacy systems, says Alcatel's Power, but he adds, "They're still very inflexible systems." It's "very hard to interface to a legacy system, and it's hard for carriers to walk away from a legacy system."

Rosenberg agrees, noting that culture has played a role as well: "The industry itself is very conservative."

Eventually, Power believes object technology will prove irresistible. "The business reasons for doing it are astronomical," he insists.

"I think as competition starts happening, you're going to see [object technology] happening quicker than anyone expected." ■

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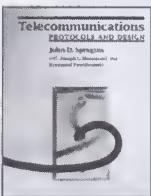
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Dec. 4-6	Implementing Local Exchange Competition	Washington DC	Grand Hyatt	800-822-6338
Dec. 4-6	North Dakota Association of Telephone Cooperatives Annual Meeting	Bismarck ND	Rodisson Inn	202-298-2328
Dec. 4-8	SUPERCOMPUTING '95	San Diego CA	Convention Center	619-534-5039
Dec. 5-8	Database & Client/Server World	Chicago IL	Novy Pier	508-470-3870
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Dec. 12-13	Bar Code Solutions and Strategies Seminar	Chicago IL	Romada O'Hare	800-733-7592
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Jan. 14-18	18th Annual Pacific Telecommunications Conference	Honolulu HI	Sheraton Waikiki	808-941-3789
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Jan. 30-Feb. 1	Telecom Resellers Association Conference	Huntington Beach CA	N/A	703-734-1225
Feb. 4-8	NTCA Annual Meeting & Expo	New Orleans LA	Marriott	202-298-2320
Feb. 5-7	1996 Communications Business & Finance Conference	New York NY	Sheraton Towers	800-822-6338
Feb. 5-9	NIUF: North American ISDN Users Forum	Gaithersburg MD	N/A	301-975-4853
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March 3-6	Minnesota Telephone Convention	Bloomington MN	N/A	612-291-2795
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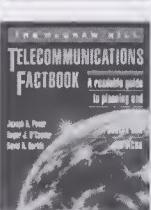
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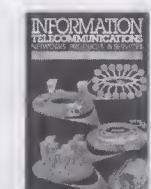
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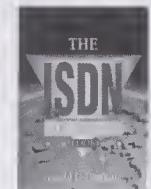
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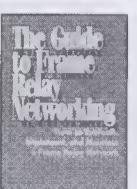
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INDUSTRY AT CROSSROADS, IN NEED OF HISTORY LESSON

Michael J. Friduss, Contributing Editor

The difference between long-term success and failure usually is not the best product, service or strategy. More often than not, it is a recognition of future marketplace realities and what it will take to win in the new environment. I often wonder what the outcome might have been if 20 years ago, the Bell system had recognized the inexorable forces of competition taking root in the industry. Given the obvious success of divestiture, hardly anyone is complaining, but I doubt it would have been the avenue of choice for Bell's leaders back then.

Today, we're at another crossroads. As the markets for local, long distance, cable TV and wireless services converge, incumbents in those markets are talking a good competitive game but are hard at work protecting their turf, much as the Bell system did. In the short term, this behavior is natural and probably beneficial to shareholders: Hold onto market share and margins as long as possible.

In the long run, the companies that recognize the coming competitive marketplace for end-to-end service, that proactively institute change and that make economically rational decisions will find themselves in better position than companies that hunker down to protect their turf no matter what.

One battle receiving plenty of press: RBOCs' control over local markets and attempts by IXCAs, CAPs and cable companies to enter those markets. The RBOCs want assurance of being allowed into long distance before they open their local markets, while the new entrants want full local competition first. Congress may help decide the timing, but one way or another, end-to-end service soon will be fully competitive.

TO BUILD OR NOT TO BUILD

A bigger question on the local side may be whether the new entrants, particularly the IXCAs, will build their own local infrastructures, completely bypassing the RBOCs, or whether the RBOCs will make unbundled network elements available at attractive wholesale prices and service levels. The implications are enormous for both sides. Access charges represent the single biggest expense for the IXCAs and the single biggest contributor to RBOCs' operating margins. IXCAs likely would be willing to spend

significant amounts of capital to get out from under the access charge burden. At the same time, RBOCs may be willing to give up some retail margin to retain a piece of the action on the wholesale side, making up at least in part for loss of access charges, while also preventing the creation of large amounts of stranded plant. What they should do may be gleaned from a lesson from the past.

HINDSIGHT

In the early 1970s, before anyone even had dreamed of divestiture, the Bell system commissioned an internal study of the long distance industry, with a focus on the company's forward strategy. (By this time, of course, MCI had been authorized to provide limited long distance service.)

The study, completed within the depths of a remote corporate planning group, recommended that the company recognize the realities of a coming fully competitive long distance marketplace and participate in setting the rules for how this should occur. This strategy, the study concluded, would not only ensure continued strong earnings, but also fend off the possibility of external action to constrain the company in the name of competition. Unfortunately, the company's leadership rejected this answer and chose a path of aggressive resistance. What might have happened had the company followed the study's recommendations?

The local loop is a precious commodity. New local service providers will buy it or build it. One thing is certain: The RBOC local loop monopoly is about to disappear. The question is: Will the RBOCs recognize the realities of the coming marketplace and realize half a loaf is better than none?

The key will be whether the wholesale price of an unbundled loop along with vertical services—e.g., field provisioning and maintenance—will be low enough to attract new local service providers to use it and, at the same time, be high enough to still provide enough margin to satisfy the RBOCs.

I think the answer will be yes. Especially considering the alternative. ■

Billion- Dollar Question

Will IXCAs build their own local networks, completely bypassing the RBOCs, or will the RBOCs make unbundled network elements available at attractive wholesale prices? IXCAs likely would spend significant capital to get out from under the access charge burden, but RBOCs may be willing to give up some retail margin to retain a piece of the action on the wholesale side.

Michael J. Friduss is president of M.J. Friduss & Associates, a telecommunications consultancy in Highland Park, Ill.

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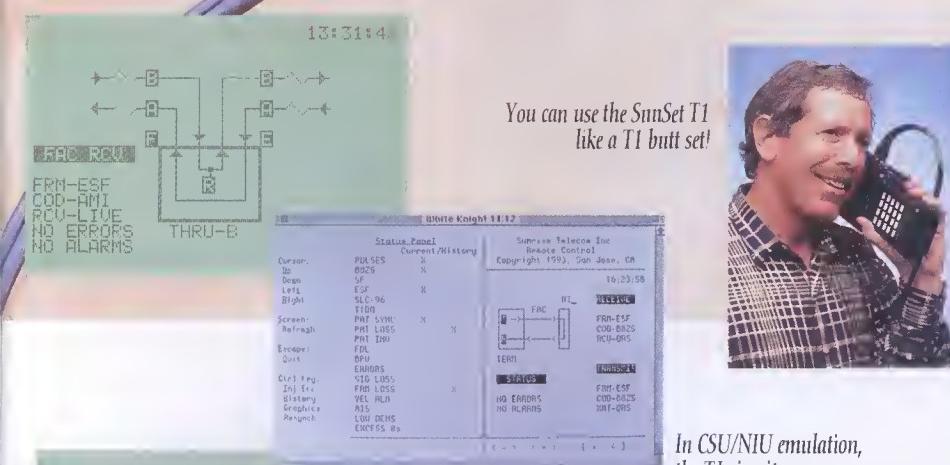
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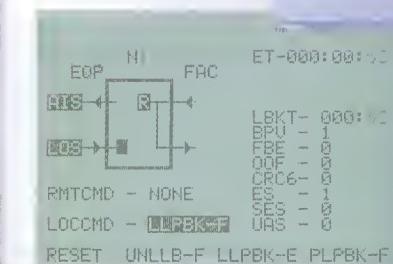
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